

**METHOD AND APPARATUS FOR A NETWORK ELEMENT TO SUPPORT A
PROTECTED COMMUNICATION LINK IN A COMMUNICATION NETWORK**

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ABSTRACT OF THE DISCLOSURE

A network element, or network switch, includes a control layer implemented over a physical layer. The network element includes firmware for supporting a protected communication link in a communication network, where the supporting includes processing that begins by receiving a link command, which includes protection criteria (e.g., fully protected, unprotected/non-preemptable, unprotected and preemptable). The processing continues by determining a type of link command. When the type of link command is to establish a connection, the processing continues by determining whether the network element is a termination node for the communication link. When the network element is not a termination node, the processing continues by determining an optimal path for the communication link via a plurality of network elements based on the link protection criteria. The processing then continues by determining the type of path to an adjacent

network element of the plurality of network elements in the optimal path based on a link coupling protocol (e.g., linear, UPSR, BLSR, etc.) coupling the present network element to the adjacent network element. The processing

5 then continues by processing the link command based on the type of path to the adjacent network element.

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